Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of production of a silicon carbide single crystal by precipitation from a solution using a temperature gradient furnace giving a temperature gradient to a columnar workpiece in its longitudinal direction, comprising:

using as said temperature gradient furnace a temperature gradient furnace provided with heat insulating walls surrounding an outer circumference of said columnar workpiece, a heating unit for heating a bottom end of said columnar workpiece through a heating susceptor, and a cooling unit for cooling a top end of said columnar workpiece through a cooling susceptor;

stacking, inside said furnace in order from the bottom, a source material rod comprised of silicon carbide, a solvent, a seed crystal, and a support rod supporting said seed crystal at ~~its bottom end~~the bottom end of the support rod so as to form said columnar workpiece, heating a bottom end of said source material rod as said bottom end of the columnar workpiece by said heating unit, and cooling a top end of said support rod as said top end of the columnar workpiece by said cooling unit so as to form a temperature gradient inside said columnar workpiece so that the top end face becomes lower in temperature than the bottom end face of said solvent; and

causing a silicon carbide single crystal to grow continuously downwardly starting from said seed crystal, wherein said method further comprises:

using an inside cylindrical susceptor tightly surrounding the outer circumference of said columnar workpiece.

2. (Original) A method of production of a silicon carbide single crystal as set forth in claim 1, further comprising carrying said inner cylindrical susceptor at its bottom end on the top end of said source material rod and suspending said support rod by a ring-shaped member screwed over its top outer circumference from the top end of said inner cylindrical susceptor so as to hold it in a manner adjustable in vertical position.

3. (Previously Presented) A method of production of a silicon carbide single crystal as set forth in claim 1, further comprising using as said source material rod a source material rod provided with one of a cylindrical or spherical counter bore at its top face.

4. (Previously Presented) A method of production of a silicon carbide single crystal as set forth in claim 1, further comprising using as said solvent one comprised of Si and at least one type of coexisting element selected from Y, Sc, a lanthanoid, an element of Group I of the Periodic Table, and an element of Group II of the Periodic Table.

5. (Currently Amended) A method of production of a silicon carbide single crystal by precipitation from a solution using a temperature gradient furnace giving a temperature gradient to a columnar workpiece in its longitudinal direction, comprising:

using as said temperature gradient furnace a temperature gradient furnace provided with heat insulating walls surrounding an outer circumference of said columnar workpiece, a heating unit for heating a bottom end of said columnar workpiece through a heating susceptor, and a cooling unit for cooling a top end of said columnar workpiece through a cooling susceptor;

stacking, inside said furnace in order from the bottom, a source material rod comprised of silicon carbide, a solvent, a seed crystal, and a support rod supporting said seed

crystal at ~~its bottom end~~the bottom end of the support rod so as to form said columnar workpiece, heating a bottom end of said source material rod as said bottom end of the columnar workpiece by said heating unit, and cooling a top end of said support rod as said top end of the columnar workpiece by said cooling unit so as to form a temperature gradient inside said columnar workpiece so that the top end face becomes lower in temperature than the bottom end face of said solvent; and

causing a silicon carbide single crystal to grow continuously downwardly starting from said seed crystal, wherein said method further comprises:

using as said source material rod a source material rod provided with a counter bore of an inside diameter equal to an outside diameter of said seed crystal on the top face and pulling said support rod at the time where a predetermined thickness of the single crystal is grown so as to remove said single crystal from said solvent.

6. (Original) A method of production of a silicon carbide single crystal as set forth in claim 5, further comprising surrounding said columnar workpiece with an heat insulating cylinder interposed between said heat insulating walls and said columnar workpiece, making a bottom end part of said support rod to have a shape with an outside diameter larger than other parts of said columnar workpiece, and bringing an outer circumferential face of the bottom end part of said support rod into contact with an inner circumferential face of said heat insulating cylinder.

7. (Previously Presented) A method of production of a silicon carbide single crystal as set forth in claim 5, further comprising using a top end holder of said support rod provided with a buffer mechanism allowing free rise of said support rod.

8. (Previously Presented) A method of production of a silicon carbide single crystal as set forth in claim 2, further comprising using as said source material rod a source material rod provided with one of a cylindrical or spherical counter bore at its top face.

9. (Previously Presented) A method of production of a silicon carbide single crystal as set forth in claim 2, further comprising using as said solvent one comprised of Si and at least one type of coexisting element selected from Y, Sc, a lanthanoid, an element of Group I of the Periodic Table, and an element of Group II of the Periodic Table.

10. (Previously Presented) A method of production of a silicon carbide single crystal as set forth in claim 3, further comprising using as said solvent one comprised of Si and at least one type of coexisting element selected from Y, Sc, a lanthanoid, an element of Group I of the Periodic Table, and an element of Group II of the Periodic Table.

11. (Previously Presented) A method of production of a silicon carbide single crystal as set forth in claim 6, further comprising using a top end holder of said support rod provided with a buffer mechanism allowing free rise of said support rod.